

WHAT IS CLAIMED IS:

1. A process for the conversion of syngas using multiple Fischer-Tropsch reactors, the process comprising:
  - a) reacting at least a portion of a first syngas, comprising at least about 2 vol% CO<sub>2</sub>, in a first Fischer-Tropsch reactor to form a first hydrocarbonaceous product and a second syngas comprising at least about 2 vol% CO<sub>2</sub>;
  - b) mixing the second syngas with a H<sub>2</sub>-containing stream to form an adjusted syngas;
  - c) reacting at least a portion of the adjusted syngas in a second Fischer-Tropsch reactor to form a second hydrocarbonaceous product and a third syngas comprising a reduced amount of CO<sub>2</sub> than was present in the adjusted syngas; and
  - d) blending at least a portion of the first and second hydrocarbonaceous products to obtain a blended hydrocarbonaceous product.
2. The process of claim 1, wherein the adjusted syngas has a molar ratio of H<sub>2</sub>:(CO+CO<sub>2</sub>) of at least about 1.0.
3. The process of claim 1, further comprising converting at least a portion of the blended hydrocarbonaceous product into at least one product selected from the group consisting of jet fuel, diesel fuel, lubricant base oil, naphtha, and combinations thereof.
4. The process of claim 1, further comprising recycling at least a portion of the third syngas so that the portion of the third syngas mixes with the first syngas to form a blended syngas.

5. The process of claim 1, wherein the first Fischer-Tropsch reactor is a reactor selected from the group consisting of a slurry bed reactor, a fixed bed reactor, a fluidized bed reactor and combinations thereof.
6. The process of claim 5, wherein the reactor is a slurry bed reactor comprising a Fischer-Tropsch catalyst that comprises cobalt.
7. The process of claim 1, wherein the second Fischer-Tropsch reactor comprises a catalyst, wherein the catalyst comprises iron.
8. The process of claim 1, wherein the adjusted syngas has a molar ratio of  $H_2:(CO+CO_2)$  of between about 1.0 and about 8.0.
9. The process of claim 1, wherein the second Fischer-Tropsch reactor is operated under conditions including a temperature between about 250°C and about 425°C and a pressure between about 1 atmosphere and about 20 atmospheres.
10. The process of claim 9, wherein the temperature is between about 300°C and about 360°C and the pressure is between about 10 atmospheres and about 18 atmospheres.
11. The process of claim 1, wherein  $CO_2$  conversion in the second Fischer-Tropsch reactor is between about 10% and about 70%.
12. The process of claim 4, wherein a combination of the first syngas and third syngas comprises about 15% or less  $CO_2$ .
13. The process of claim 12, wherein the combination comprises about 10% or less  $CO_2$ .

14. The process of claim 1, further comprising mixing the hydrogen-containing stream with the second syngas at least one of before, during or after the second syngas enters the second Fischer-Tropsch reactor.
15. The process of claim 1, further comprising forming the first syngas.
16. The process of claim 15, wherein the molar ratio of  $H_2:(CO+CO_2)$  is between about 1.0 and about 8.0.
17. A process for the conversion of syngas using multiple Fischer-Tropsch reactors, the process comprising:
  - a) forming a first syngas comprising at least about 2 vol%  $CO_2$ ;
  - b) reacting at least a portion of the first syngas in a first Fischer-Tropsch reactor to form a first hydrocarbonaceous product and a second syngas comprising at least about 2 vol%  $CO_2$ ;
  - c) mixing the second syngas with a  $H_2$ -containing stream to obtain an adjusted syngas having a molar ratio of  $H_2:(CO+CO_2)$  of between about 1.0 and about 8.0;
  - d) reacting at least a portion of the adjusted syngas in the second Fischer-Tropsch reactor to form a second hydrocarbonaceous product and a third syngas comprising a reduced amount of  $CO_2$  than was present in the adjusted syngas;
  - e) blending at least a portion of the first and second hydrocarbonaceous products to produce a blended hydrocarbonaceous product; and
  - f) converting at least a portion of the blended hydrocarbonaceous product into at least one product selected from the group consisting of jet fuel, diesel fuel, lubricant base oil, naphtha, and combinations thereof.

18. A process for the conversion of syngas using multiple Fischer-Tropsch reactors, the process comprising:
- a) reacting at least a portion of a blended syngas comprising a first syngas and containing at least about 2 vol% CO<sub>2</sub> in a first Fischer-Tropsch reactor to form a first hydrocarbonaceous product and a second syngas comprising at least about 2 vol% CO<sub>2</sub>;
  - b) mixing the second syngas with a H<sub>2</sub>-containing stream to form an adjusted syngas;
  - c) reacting at least a portion of the adjusted syngas in a second Fischer-Tropsch reactor to form a second hydrocarbonaceous product and a third syngas comprising a reduced amount of CO<sub>2</sub> than was present in the adjusted syngas;
  - d) blending at least a portion of the first and second hydrocarbonaceous products to obtain a blended hydrocarbonaceous product; and
  - e) recycling at least a portion of the third syngas to be mixed with the first syngas to form the blended syngas.
19. A Gas-to-Liquids facility comprising:
- a) a first Fischer-Tropsch reactor that reacts at least a portion of a first syngas, comprising at least about 2 vol% CO<sub>2</sub>, to form a first hydrocarbonaceous product and a second syngas comprising at least about 2 vol% CO<sub>2</sub>;
  - b) a hydrogen source that provides hydrogen that mixes with the second syngas to form an adjusted syngas;
  - c) a second Fischer-Tropsch reactor that reacts at least a portion of the adjusted syngas to form a second hydrocarbonaceous product and a third syngas comprising a reduced amount of CO<sub>2</sub> than was present in the adjusted syngas; and

- d) a blender that blends at least a portion of the first and second hydrocarbonaceous products to produce a blended hydrocarbonaceous product.
- 20. The facility of claim 19, wherein the first Fischer-Tropsch reactor is a reactor selected from the group consisting of a slurry bed reactor, a fixed bed reactor, a fluidized bed reactor and combinations thereof.
- 21. The facility of claim 20, wherein the reactor is a slurry bed reactor comprising a Fischer-Tropsch catalyst that comprises cobalt.
- 22. The facility of claim 19, wherein the hydrogen source comprises a hydrogen recovery system that recovers hydrogen from process streams using a recovery method selected from the group consisting of adsorption, absorption, cryogenic separation, membrane separation and combinations thereof.
- 23. The facility of claim 22, wherein the hydrogen source comprises a hydrogen recovery system that recovers hydrogen from steam reforming of methane.